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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte YOSHITAKA SASAKI, HIROYUKI ITO, KAZUKI SATO, and
ATSUSHI IIJIMA

Appeal 2015-006051
Application 13/035,219
Technology Center 2600

Before JEAN R. HOMERE, ST. JOHN COURTENAY III, and
SCOTT BAIN, *Administrative Patent Judges*.

COURTENAY, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–6. Claims App'x. We have jurisdiction under 35 U.S.C. § 6(b). An oral hearing was conducted on April 20, 2017.

We reverse.

Invention

The disclosed and claimed invention on appeal “relates to a magnetic head for perpendicular magnetic recording that is used for writing data on a recording medium by means of a perpendicular magnetic recording system,

and more specifically, to a magnetic head for perpendicular magnetic recording that includes a sensor for detecting contact with a recording medium.” (Spec. 1, ll. 7–11).

Representative Claim

1. A magnetic head for perpendicular magnetic recording, comprising:
 - a medium facing surface that faces a recording medium;
 - a read head unit;
 - a write head unit disposed forward of the read head unit along a direction of travel of the recording medium;
 - first and second heaters that generate heat for causing the medium facing surface to protrude in part;
 - an expansion layer that expands with the heat generated by the first and second heaters and thereby makes part of the medium facing surface protrude;
 - a sensor that detects contact of the part of the medium facing surface with the recording medium; and
 - a nonmagnetic part made of a nonmagnetic material and disposed around the expansion layer and the sensor, wherein:
 - the read head unit includes a read element that reads data written on the recording medium, and first and second read shield layers that are disposed such that the read element is interposed therebetween;
 - the write head unit includes:
 - a coil that produces a magnetic field corresponding to data to be written on the recording medium;
 - a main pole that has an end face located in the medium facing surface, allows a magnetic flux corresponding to the magnetic field produced by the coil to pass, and produces a write magnetic field for writing the data on the recording medium by means of a perpendicular magnetic recording system;

a write shield made of a magnetic material and having an end face located in the medium facing surface;

a gap part made of a nonmagnetic material and disposed between the main pole and the write shield; and

a first return path section made of a magnetic material;

the end face of the write shield includes a first end face portion located forward of the end face of the main pole along the direction of travel of the recording medium;

the first return path section includes: a yoke layer located backward of the main pole along the direction of travel of the recording medium; a first coupling part that couples the yoke layer and the write shield to each other; and a second coupling part that is located away from the medium facing surface and couples the yoke layer and the main pole to each other;

the expansion layer, the sensor, and the nonmagnetic part are located between the read head unit and the write head unit;

[L] *the first and second heaters are located at positions other than between the read head unit and the write head unit, the positions being such that the expansion layer, the sensor, and the nonmagnetic part are interposed between the first and second heaters;*

no heater is present between the read head unit and the write head unit; and

the expansion layer has a thermal conductivity and a linear thermal expansion coefficient higher than those of the nonmagnetic part.

(Contested limitation L bracketed and emphasized).

Rejection

Claims 1–6 are rejected under pre-AIA 35 U.S.C. § 103(a) as being obvious over the combined teachings and suggestions of Kanaya et al. (US 8,199,431 B2; iss. June 12, 2012) (hereinafter “Kanaya”) in view of Araki et al. (US 2010/0165517 A1; pub. July 1, 2010) (hereinafter “Araki”).

ANALYSIS

We have considered all of Appellants' arguments and any evidence presented. We find Appellants' arguments persuasive for the reasons discussed *infra*. We highlight and address specific findings and arguments for emphasis in our analysis below.

Rejection of Independent Claim 1 under 35 U.S.C. § 103(a)

We decide the following issue presented in this appeal:

Issues: Under § 103, did the Examiner err by finding the cited combination of Kanaya and Araki would have taught or suggested contested limitation L:

the first and second heaters are located at positions other than between the read head unit and the write head unit, the positions being such that the expansion layer, the sensor, and the nonmagnetic part are interposed between the first and second heaters[.]

within the meaning of claim 1? ¹

The ultimate issue of obviousness is a question of law that turns upon four underlying factual determinations: (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966), as reaffirmed by *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In *KSR*, the Supreme Court further guides that “the combination of familiar

¹ We give the contested claim limitation the broadest reasonable interpretation consistent with the Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 550 U.S. at 416.

We find the dispositive question in this appeal is whether the Examiner provided sufficient evidence to establish the obviousness of the claimed *structural arrangement* of components: “**such that the expansion layer, the sensor, and the nonmagnetic part are interposed between the first and second heaters**, as required by the language of claim 1.

(Emphasis added). The question of obviousness in this appeal turns upon the *Graham* factors, and in particular, *Graham* factor 4: “objective indicia of nonobviousness.”

Regarding *Graham* factors (1) (*the scope and content of the prior art*), and (3) (*the differences between the claimed invention and the prior art*), the Examiner does not rely on the secondary Araki reference for teaching or suggesting contested limitation L. (*See* Final Act. 5). Nor does the Examiner find contested limitation L is taught or suggested by Kanaya:

As recited in claim 1, Kanaya et al. [is] silent regarding first and second heaters, and the first and second heaters are located at positions other than between the read head unit and the write head unit, the positions being such that the expansion layer, the sensor, and the nonmagnetic part are interposed between the first and second heaters.

(Final Act. 6).

Instead of providing specific evidence to reject contested limitation L, the Examiner is guided by *In re Harza*, 274 F.2d 669, 671 (CCPA 1960) (“It is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced.”). The Examiner further notes there is no invention in *relocating* known parts, when the functioning of the apparatus *is not changed by the relocation*,

citing *In re Japikse*, 181 F.2d 1019, 1023 (CCPA 1950) (“As to that limitation is was held that there would be no invention in shifting the starting switch disclosed by Cannon to a different position since the operation of the device would not thereby be modified.”).

In the presumptive absence of any evidence of “objective indicia of nonobviousness” (*Graham* factor 4, *e.g.*, unexpected results, long felt but unmet need, and/or evidence of commercial success, *inter alia*), the Examiner finds “the recited numbers and locations of [the claimed] heaters were *predictable* at the time of Applicant’s disclosure.” (Final Act. 6) (emphasis added).

The Examiner further reasons that “[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the recited number and locations of heaters in the head of Kanaya,” based on the rationale that “one of ordinary skill in the art would have had reason to try **any number of heaters** within the range of numbers of heaters known in the art,” citing in support, *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1322 (Fed. Cir. 2004). (Final Act. 6) (emphasis added). The Examiner additionally finds “to **arbitrarily select a location** absent any change in functioning whatsoever due to the relocation [was] **notoriously well known in the art.**” (*Id.*) (emphasis added).

Declaration under 37 C.F.R. §1.132

Subsequent to the Final Action (mailed May 28, 2014), a Declaration under 37 C.F.R. §1.132, was filed attesting to an “unexpected discovery” (¶ 6) regarding the use of **two heaters**. The Declaration was filed on

October 17, 2014, by the first named inventor (Yoshitaka Sasaki). The Examiner addresses the Declaration in the Answer (4):

although Appellant's affidavit purports to establish that independent adjustment of 2 heaters causes 2 independent quantities of protrusion, which “makes it possible that” a read distance could be optimized for reading during a read operation and that a write distance could be optimized for writing during a write operation, it is noted by the Examiner that independent adjustment of heaters is not recited in the claims, and that independent optimization of read and write distance is not recited in the claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

We note it is uncontested in the record that Kanaya only teaches a **single heater**. *See e.g.*, Figs. 1B, 1C, Fig. 2, **heater 8**; *see also*, col. 6, l. 37, col. 7, l. 27. Thus, we find *Graham* factors: (1) *the scope and content of the prior art*, and (3) *the differences between the claimed invention and the prior art*, are clear and uncontested in the record.

Appellants note in the principal Brief:

the present application explains that the inventors were able to increase the accuracy in the control of the amount of protrusion of part of the medium facing surface and the protruding shape thereof by using two heaters instead of one heater (see, e.g., specification, page 43, lines 16-19). There is no recognition in the art of this **unexpected result (i.e., increase in accuracy of controlling the protruding part) from the addition of a heater and the positioning of the heaters**, as supported in more detail in the **Rule 132 Declaration** (see Rule 132 Declaration, paragraphs 10 and 11).

(App. Br. 8).

Turning to the Declaration under 37 C.F.R. §1.132, we note numbered paragraph 6:

6. The pending claims are directed to the **unexpected discovery** that a magnetic head with two heaters, instead of the single heater described in Kanaya, **can improve the accuracy of the control of the amount of the protrusion** of a medium facing surface of the magnetic head that faces the recording medium.

The Declarant further states, *inter alia*:

7. As discussed in the specification of the present application at page 28, lines 19-21, “The **protruding shape** of the medium facing surface 2 can be controlled somewhat by adjusting the respective magnitudes of the currents passed through the heaters 82 and 92 **independently**.”

9. By adjusting the respective magnitudes of the currents passed through the two heaters independently, **it becomes possible to control the shape of the medium facing surface** so that the **distance from the read head unit** to the surface of the recording medium and the **distance from the write head unit** to the surface of the recording medium can be controlled **independently** of each other.

19. According to Kanaya, **since there is provided only one heater, it is not possible to control the shape of the medium facing surface** so that the distance from the read head unit to the surface of the recording medium and the distance from the write head unit to the surface of the recording medium can **be controlled independently of each other**. Consequently, the above-described advantages achieved by the **structure and arrangement recited in the claims** could not be expected or obtained from the structure of Kanaya.

20. **Kanaya's magnetic head has only one heater**. Thus, even if the magnitude of the electric current passed through the heater is changed to vary the amount of heat to be generated by the heater, it can only change the amount of protrusion of the

most protruded portion of the medium facing surface. Kanaya's magnetic head is obviously **unable to control the amount of protrusion** of the portion of the medium facing surface **corresponding to the read head unit** and the **amount of protrusion** of the portion of the medium facing surface **corresponding to the write head unit independently of each other**.

(Emphasis added).

Although we must be cautious of self-serving declarations by named inventors,² we find the Declaration (¶¶7–8) is supported by citations to specific portions of the Specification, and also by accurate descriptions (Dec. ¶¶5, 6, 19, 20) of the teachings of Kanaya. We have fully considered the Declaration and the inventor's statements therein as evidence of secondary considerations to be weighed as *Graham* factor (4): *objective indicia of nonobviousness*.

We particularly note that contested limitation L of claim 1 requires **more than a mere duplication of heaters** (“located at positions **other than between the read head unit and the write head unit . . .**”). The language of claim 1 specifically requires **a particular structural arrangement of components located between the heater components**:

[L] “*the first and second heaters are located at positions other than between the read head unit and the write head unit, the positions being **such that the expansion layer, the sensor, and the nonmagnetic part are interposed between the first and second heaters.***” (emphasis added).

² See *Reese v. Hurst*, 661 F.2d 1222, 1239 (CCPA 1981) (discussing the weight given to self-serving declarations made by an Appellant in an interference proceeding).

Regarding evidence of secondary considerations (such as unexpected results), our reviewing court provides guidance:

“For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.” *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010) (quotation omitted). Where the offered secondary consideration actually results from something other than what is both claimed and novel in the claim, there is no nexus to the merits of the claimed invention. *Tokai Corp. v. Easton Enters., Inc.*, 632 F.3d 1358, 1369 (Fed.Cir.2011) (“If commercial success is due to an element in the prior art, no nexus exists.”); *Ormco Corp.*, 463 F.3d at 1312 (“[I]f the feature that creates the commercial success was known in the prior art, the success is not pertinent.”); *In re Woodruff*, 919 F.2d 1575, 1578 (Fed.Cir.1990).

In re Huai-Hung Kao, 639 F.3d 1057, 1068 (Fed. Cir. 2011).

The Examiner finds there is no nexus between the Declaration evidence and the merits of the claimed invention, emphasizing that “independent adjustment of heaters is not recited in the claims, and that independent optimization of read and write distance is not recited in the claims.” (Ans. 4).

However, we find the advantage proffered by the inventor of **independent adjustment of heaters** (Declaration ¶¶ 19–20) and the associated “**unexpected discovery** that a magnetic head with **two heaters** . . . can **improve the accuracy** of the control of the amount of the protrusion of a medium facing surface of the magnetic head that faces the recording medium” (Declaration ¶ 6), is **only possible with at least two heaters**, which are expressly recited as “first and second heaters” in claim 1. The Examiner has shown a **single heater** is present in Kanaya: “a heater 8 that

generates heat for causing the medium facing surface to protrude in part (see especially Fig. 1B);” (Final Act. 2).

Contrary to the Examiner’s findings (Ans. 4), we find the purported advantages and unexpected results set forth in the Declaration have a direct nexus to the claimed invention, which expressly requires **two heaters**, with a specific structural arrangement “**such that the expansion layer, the sensor, and the nonmagnetic part are interposed between the first and second heaters.**” (Claim 1). Therefore, we find the Declarant sufficiently establishes “a nexus between the evidence and the merits of the claimed invention.” *Wyers*, 616 F.3d at 1246.

To discredit the Declaration, all the Examiner needs to show is a prior art reference with **two heaters, structurally arranged with the interposed components**, as claimed. *Cf. Woodruff*, 919 F.2d at 1578 (“[I]f the feature that creates the commercial success was known in the prior art, the success is not pertinent.”). Here, the Examiner has not found a reference depicting **two heaters, structurally arranged as claimed.** (Claim 1).³

Even if *arguendo*, we accorded no weight to the Declaration evidence of unexpected results, and even if **duplication of heaters** “*at positions other than between the read head unit and the write head unit*” (claim 1) would have *arguendo* been a **mere duplication of parts**, and therefore **obvious to try**, and would have resulted in **predictable results** (two heaters instead of one), we find what is clearly missing from the evidence provided by the Examiner is the claimed **structural arrangement of components located**

³ When questioned during the oral hearing, Appellants’ representative stated that he was unaware of any prior art with the **two heater arrangement** as recited in contested limitation L of Appellants claim 1.

between the two heater components: [L] “*the first and second heaters are located at positions other than between the read head unit and the write head unit, the positions being such that the expansion layer, the sensor, and the nonmagnetic part are interposed between the first and second heaters.*” (Claim 1) (emphasis added).

Although we recognize that the **structure** of an individual component does not change when the component is moved to a different location (such as the switch in *Japikse*, 181 F.2d at 1023), on this record, the Examiner has not shown the claimed **structural arrangement of components** recited in contested limitation L of claim 1 would have been obvious.

Nor has the Examiner established in the record why an artisan of ordinary skill in the art, having knowledge of Kanaya and Araki (and with no prior knowledge of Appellants’ Specification and claims), would have been motivated to arrange the components found in the prior art in the manner required by contested limitation L of claim 1. Thus, regarding *Graham* factor (2), **the level of ordinary skill in the art**, we find the Examiner has not established that an artisan of ordinary skill in the art, having knowledge of the cited prior art, would have possessed a sufficient level of skill to independently arrive at Appellants’ claimed improvement.⁴

⁴ In determining the level of skill in the art, various factors may be considered, including “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986)).

Conclusion

For the reasons discussed above, we find all four *Graham* factors weigh against the Examiner's legal conclusion of obviousness for claim 1: (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) objective indicia of nonobviousness.

Accordingly, for the reasons argued by Appellants in the Briefs, as discussed above, we find a preponderance of the evidence does not support the Examiner's legal conclusion of obviousness for claim 1.

Without any specific evidence of record to show the claimed **structural arrangement of components** recited in contested limitation L of claim 1, we are constrained on this record to reverse the Examiner's rejection under § 103 of independent claim 1, and the §103 rejection of claims 2–6 which depend therefrom.

DECISION

We reverse the Examiner's decision rejecting claims 1–6 under 35 U.S.C. § 103(a).

REVERSED